

WHAT IS CLAIMED IS

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1. A magnetic recording and/or reproducing apparatus comprising:

equalization means for equalizing a signal sequence which is reproduced from a magnetic recording medium and outputting an equalized waveform; and

conversion means for converting the equalized waveform into a maximum likelihood sequence by carrying out metric calculation based on average values of the equalized waveform.

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2. The magnetic recording and/or reproducing apparatus as claimed in claim 1, further comprising:

error detection and correction means for carrying out an error detection and an error correction with respect to the maximum likelihood sequence using a parity bit,

said error detection and correction means carrying out the error correction by comparing a sequence which is obtained by convolution of the maximum likelihood sequence and the average values of the equalized waveform, with the equalized waveform.

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3. The magnetic recording and/or

reproducing apparatus as claimed in claim 1, further comprising:

memory means for storing a conversion table which includes the average values of the equalized  
5 waveform.

10 4. The magnetic recording and/or reproducing apparatus as claimed in claim 3, further comprising:

control means for updating said conversion table at an arbitrary timing.  
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20 5. A magnetic recording and/or reproducing apparatus comprising:  
a look-up table which stores compensation amounts based on errors between ideal values and average values of a reproduced waveform of a signal sequence reproduced from a magnetic recording medium  
25 or average values of an equalized waveform which is obtained by equalization of the reproduced waveform; and

a compensation circuit which carries out a recording compensation with respect to a non-linear  
30 distortion based on said look-up table when recording the signal sequence on the magnetic recording medium.

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6. The magnetic recording and/or

reproducing apparatus as claimed in claim 5, wherein said look-up table includes polarity information of magnetic transition.

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7. The magnetic recording and/or reproducing apparatus as claimed in claim 5, wherein  
10 the compensation amounts reflect effects of the magnetic transition of three or more preceding bits.

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8. The magnetic recording and/or reproducing apparatus as claimed in claim 5, further comprising:  
control means for updating said look-up table  
20 at an arbitrary timing.

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9. A magnetic recording and/or reproducing apparatus comprising:  
reproducing means for reproducing a signal sequence from a magnetic recording medium and outputting a reproduced waveform;  
30 equalization means for equalizing the reproduced waveform and outputting an equalized waveform;  
a look-up table which stores compensation amounts based on errors between ideal values and  
35 average values of the reproduced waveform or average values of the equalized waveform; and  
a compensation circuit which carries out a

recording compensation with respect to a non-linear distortion based on said look-up table when recording the signal sequence on the magnetic recording medium.

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10           10. The magnetic recording and/or reproducing apparatus as claimed in claim 9, further comprising:

memory means for storing said look-up table, and a conversion table which includes the average values of the equalized waveform.

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20           11. The magnetic recording and/or reproducing apparatus as claimed in claim 10, further comprising:

control means for updating said conversion table and/or said look-up table at an arbitrary timing.

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30           12. A magnetic recording and/or reproducing apparatus comprising:

an equalization section which carries out an equalization with respect to a signal sequence reproduced from a magnetic recording medium, and outputs an equalized waveform; and

35           a conversion section which converts the equalized waveform into a maximum likelihood sequence by carrying out metric calculation based on

average values of the equalized waveform.

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13. A magnetic recording and/or reproducing apparatus comprising:

10 a reproducing section which reproduces a signal sequence from a magnetic recording medium and outputs a reproduced waveform;

an equalization section which carries out an equalization on the reproduced waveform and outputs an equalized waveform;

15 a look-up table which stores compensation amounts based on errors between ideal values and average values of the reproduced waveform or average values of the equalized waveform; and

20 a compensation circuit which carries out a recording compensation with respect to a non-linear distortion based on said look-up table when recording the signal sequence on the magnetic recording medium.

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